

SHIP PRODUCTION COMMITTEE  
FACILITIES AND ENVIRONMENTAL EFFECTS  
SURFACE PREPARATION AND COATINGS  
DESIGN/PRODUCTION INTEGRATION  
HUMAN RESOURCE INNOVATION  
MARINE INDUSTRY STANDARDS  
WELDING  
INDUSTRIAL ENGINEERING  
EDUCATION AND TRAINING

September 1979  
NSRP 0006

# **THE NATIONAL SHIPBUILDING RESEARCH PROGRAM**

## **Proceedings of the REAPS Technical Symposium**

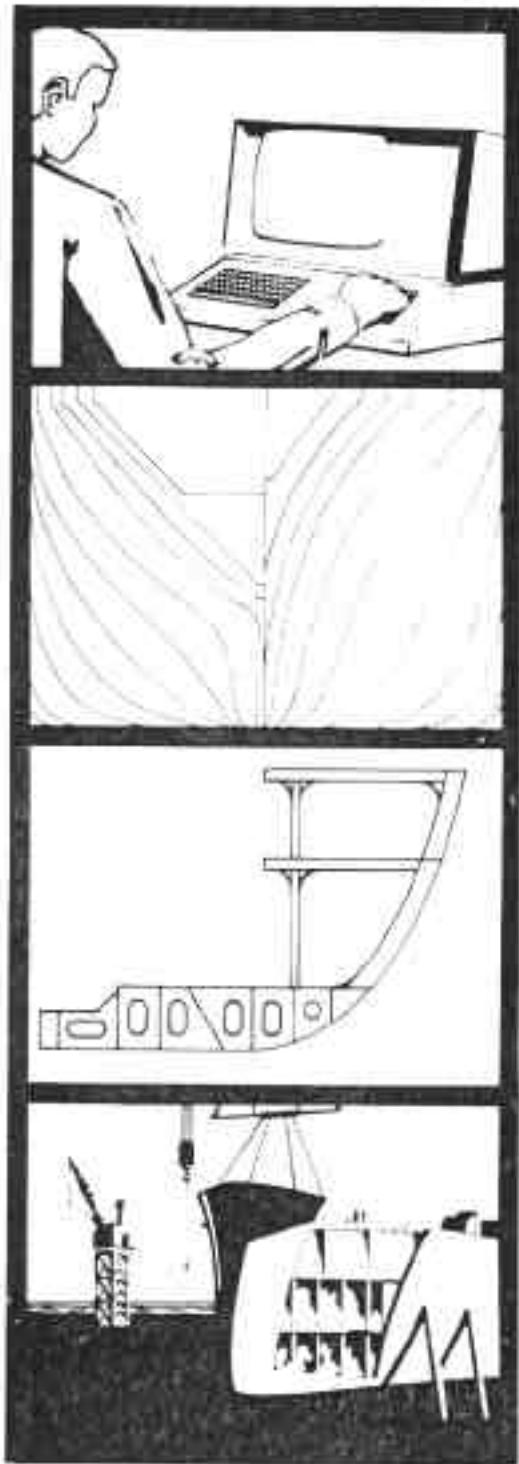
### **Paper No. 29: Exploiting Database Management Systems in Shipbuilding**

U.S. DEPARTMENT OF THE NAVY  
CARDEROCK DIVISION,  
NAVAL SURFACE WARFARE CENTER

<b>Report Documentation Page</b>			<i>Form Approved OMB No. 0704-0188</i>	
<p>Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.</p>				
1. REPORT DATE <b>SEP 1979</b>	2. REPORT TYPE <b>N/A</b>	3. DATES COVERED <b>-</b>		
4. TITLE AND SUBTITLE <b>The National Shipbuilding Research Program Proceedings of the REAPS Technical Symposium Paper No. 29: Exploiting Database Management Systems in Shipbuilding</b>			5a. CONTRACT NUMBER	
			5b. GRANT NUMBER	
			5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)			5d. PROJECT NUMBER	
			5e. TASK NUMBER	
			5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) <b>Naval Surface Warfare Center CD Code 2230 - Design Integration Tools Building 192 Room 128 9500 MacArthur Blvd Bethesda, MD 20817-5700</b>			8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)			10. SPONSOR/MONITOR'S ACRONYM(S)	
			11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT <b>Approved for public release, distribution unlimited</b>				
13. SUPPLEMENTARY NOTES				
14. ABSTRACT				
15. SUBJECT TERMS				
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT <b>SAR</b>	18. NUMBER OF PAGES <b>8</b>
a. REPORT <b>unclassified</b>	b. ABSTRACT <b>unclassified</b>	c. THIS PAGE <b>unclassified</b>		

## DISCLAIMER

These reports were prepared as an account of government-sponsored work. Neither the United States, nor the United States Navy, nor any person acting on behalf of the United States Navy (A) makes any warranty or representation, expressed or implied, with respect to the accuracy, completeness or usefulness of the information contained in this report/manual, or that the use of any information, apparatus, method, or process disclosed in this report may not infringe privately owned rights; or (B) assumes any liabilities with respect to the use of or for damages resulting from the use of any information, apparatus, method, or process disclosed in the report. As used in the above, "Persons acting on behalf of the United States Navy" includes any employee, contractor, or subcontractor to the contractor of the United States Navy to the extent that such employee, contractor, or subcontractor to the contractor prepares, handles, or distributes, or provides access to any information pursuant to his employment or contract or subcontract to the contractor with the United States Navy. **ANY POSSIBLE IMPLIED WARRANTIES OF MERCHANTABILITY AND/OR FITNESS FOR PURPOSE ARE SPECIFICALLY DISCLAIMED.**



**R** ESEARCH  
AND  
**E**NGINEERING  
FOR  
**A**UTOMATION  
AND  
**P**RODUCTIVITY  
IN  
**S**HIPBUILDING

**Proceedings of the**  
**REAPS Technical Symposium**  
**September 11-13, 1979**  
**San Diego, California**

**EXPLOITING DBMS IN SHIPBUILDING**  
**Special Interest Group Meeting Report**

**O. J. Wblanyk**  
**Manager, Information Systems Administration**  
**National Steel and Shipbuilding Company**  
**San Diego, California**

**As Manager of Information Systems Administration, Mr. Wblanyk is responsible for data base administration, word processing, standards, and procedures. He is a graduate of the University of Akron with two degrees in mathematics.**

**Mr. Wblanyk previously served as Data Base Manager at Sherwin-Williams and as Data Base Administrator at NASA-Lewis Research Center.**

SPECIAL INTEREST GROUP MEETING REPORT:  
Exploiting Database Management Systems in Shipbuilding  
O.J. Wolanyk

The thought occurred to me while sitting here listening to these excellent presentations that those of you who were in the SIG session yesterday concerned with defining data processing problems missed our session which was involved in solving them.

Our basic discussion was on database administration, starting out by defining data as a corporate resource that should be managed, mainly because it costs money. It costs money to manipulate it, it costs money if you cannot access it. We talked about today's environment in data processing as being fragmented, characterized by the lack of controls - the usual syndrome of everybody wanting to own their own data.

We raised the question of why should a corporation consider their own database. The main reason, of course, is to gain control over the data and therefore improve the accuracy and the timeliness of the data. That is, to be able to retrieve information and know that it is the most accurate and up to date available. Other reasons are to reduce data redundancy and thereby permit sharing of data among applications and allow data usage restrictions to be applied effectively. Knowing where the data is located, or that it resides in fewer locations, makes it easier to control that data. Finally of course, maintenance of data integrity and data independence issues can be addressed. By data independence issues we mean the ability to change a program or to change a database and not have to change the other.

We discussed data administration tools that are available to us. Specifically, the database management system and the data dictionary. A data dictionary is a central repository of information containing standardized descriptions of data and other components of information systems. The theory being that if we can document existing systems we will be in good position to take advantage of upcoming technology, instead of doing the usual routine of trying to figure out where we are today. The objectives of the data dictionary itself, are to prevent unplanned redundancy and inconsistency in data, to know where the data are and to take advantage of it rather than recreating it each time. More importantly, through the data dictionary facilities a reduction in application development cost and time can be realized. Applications can be finished sooner, because they can be started sooner; a reduction in application modification costs and time can be realized.

We all know program maintenance is the most significant part of most data processing budgets. We can support the establishment and enforcement of database standards again through the centralized control the data dictionary capability will give us. Furthermore, we will have a vehicle that will facilitate communication between the using community and data processing. The questions that the data dictionary can answer for us, that we need to know at system development time include: What data are available in the corporation? Where is the data located? How is it structured? Who is responsible for it? Who are the users and where are they located? And what are the reports and programs which use that data? If we have that information at hand then changes in the corporation's way of doing business and the way of doing manufacturing can quickly be reflected in changes to the underlying data processing systems that support those functions.

Two major conclusions were arrived at during the session. First, there are no database management system packages commercially available today that really suit both the commercial and the manufacturing side of an organization as well as the engineering side. However, there is a commonality between the two application **areas** that should be tied together, perhaps, through interface systems. The second conclusion is that the effort involved in the implementation of a data dictionary is worth it to put the shipyard in position to take advantage of new technology.

Additional copies of this report can be obtained from the  
National Shipbuilding Research and Documentation Center:

<http://www.nsnet.com/docctr/>

Documentation Center  
The University of Michigan  
Transportation Research Institute  
Marine Systems Division  
2901 Baxter Road  
Ann Arbor, MI 48109-2150

Phone: 734-763-2465  
Fax: 734-763-4862  
E-mail: Doc.Center@umich.edu